

Medical Science

To Cite:

Ghalilah KM, Jorob SMH, Alahmadi DYM, Baqrain UHUA, Alharbi HMS, Alkolaibi LAA, Alahmadi JSH. Awareness and attitude of female preschool teachers towards autism in Medina. *Medical Science* 2024; 28: e46ms3345
doi: <https://doi.org/10.54905/disssi.v28i147.e46ms3345>

Authors' Affiliation:

¹Infection Control Consultant Physician, King Saalman Medical City, Madinah, Saudi Arabia

²General Practitioner, College of Medicine, Alrayan Colleges, Madinah, Saudi Arabia

³General Practitioner, Dow University of Health Sciences, Karachi, Pakistan

⁴Medical Student, College of Medicine, Alrayan Colleges, Madinah, Saudi Arabia

*Corresponding Author

General Practitioner, College of Medicine, Alrayan Colleges, Madinah, Saudi Arabia
Email: dan.alahmadi22@gmail.com

Peer-Review History

Received: 11 March 2024

Reviewed & Revised: 15/March/2024 to 16/May/2024

Accepted: 20 May 2024

Published: 25 May 2024

Peer-review Method

External peer-review was done through double-blind method.

Medical Science

pISSN 2321-7359; eISSN 2321-7367



© The Author(s) 2024. Open Access. This article is licensed under a [Creative Commons Attribution License 4.0 \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

Awareness and attitude of female preschool teachers towards autism in Medina

Khalid Mohammed Ghalilah¹, Shahad Mohammed Hassan Jorob², Dana Yousef Mansour Alahmadi^{2*}, Umme Habiba Usman Ahmed Baqrain³, Haneen Mohammed Saad Alharbi⁴, Leena Anas Ahmed Alkolaibi⁴, Joud Saleh Hamdan Alahmadi⁴

ABSTRACT

Background: Autism Spectrum Disorder (ASD) is a clinical condition that is characterized by a complex manner of development, some difficulties degree in social communication, lack of interest, and the presence of behavior abnormalities. **Objective:** This study aimed to measure autism awareness in preschool teachers from September 2023 to October 2023. **Methods:** A cross-sectional descriptive study was conducted on preschool teachers in the kindergartens in the Medina region to measure the awareness of autism in preschool teachers from September 2023 to October 2023. **Results:** The total number of participants in our search was 303 preschool teachers. Age group 41 – 50 years old was the most prevalent age group, with 127 participants (41.9 %). The percentage of teachers who Contact Students with Autism was 48.2 %. Statistical analysis showed no significant association between the level of awareness and factors such as age group ($p = 0.222$), living place ($p = 0.815$), or position ($p = 0.387$). These findings suggest that these factors did have a significant role in influencing participants' level of awareness, as p -values were greater than 0.05. **Conclusion:** Participants had good knowledge regarding detecting ASD. However, there is no significant difference in the level of awareness concerning the attendance of the classes, but no value regarding age, gender, years of teaching experience, and contact with students with autism.

Keywords: Autism Spectrum Disorder, Awareness, Attitudes, Knowledge, Preschool teachers

1. INTRODUCTION

Autism Spectrum Disorder (ASD) is a clinical condition characterized by a complex manner of development, some difficulties degree in social

communication, lack of interest, and the presence of behavior abnormalities (Imbriani et al., 2021). Autism had been seen before by Leo Kanner as a problem related to social communication problems with the presence of repetitive behaviors in children. This disorder may occur in infants or early childhood but is diagnosed later and could affect 1% of the population. Also, boys are affected more than girls, and autism is more evident in the early years of life (Kanner, 1943). The primary etiology of this disorder is not well known, but the environment and genes play a vital role in autism spectrum disorder (Lord and Corsello, 2005).

Many researchers reported that autism spectrum disorder prevalence is near 1 in 160 children (Brugha et al., 2016). However, according to the Centers for Disease Control and Prevention (CDC), Autism and Developmental Disabilities Monitoring (ADDM) Network Clinic, (2024), the prevalence of autism spectrum disorder is about one in forty-four children. ASD prevalence in Asia is about 0.35% (Qiu et al., 2020). ASD in Asia had a prevalence rate of nearly 1.5 to 30 per 10,000 children (Salhia et al., 2014). In the Kingdom of Saudi Arabia (KSA), the prevalence of ASD was 2.81 per 1,000 children, documented in two leading research. in Jeddah and Makkah (Sabbagh et al., 2021).

The Ministry of Health reported that ASD had a prevalence rate of nearly one in every 160 children. This prevalence has increased in the last decade and has become more than Diabetes mellitus (DM) and cancer. There are many numbers of children attending kindergarten who are affected with ASD. This increase in ASD in those children emphasizes the necessity of preschool teachers' education regarding ASD to help those patients and to pick up the diagnosis early as soon as possible (Mohammed-Taresh et al., 2020). Children with this disorder require more attention from teachers than others regarding social communication (Mohammed-Taresh et al., 2020). So, preschool teachers must become more aware of the criteria of ASD to detect the cases so the prognosis will become better (Simpson, 2005).

If teachers lack knowledge, it will affect the diagnosis of ASD in the children. Fixing this problem will give us a chance to increase teachers' knowledge regarding ASD (Alharbi et al., 2019). In one study in KSA that evaluated the degree of teachers' knowledge regarding ASD, the degree of understanding of ASD was 49 % (Alharbi et al., 2019). In another study done in KSA, knowledge regarding ASD among schoolteachers was observed (Haimour and Obaidat, 2013). In another study that investigated preschool teachers' knowledge regarding ASD, there was a difference in the knowledge degree of ASD, and teacher education was the principal factor for this (Mohammed-Taresh et al., 2020).

Another study was planned to detect the degree of autism awareness among schoolteachers in Oman. The knowledge degree of ASD is low in the teachers in Oman (Al-Sharbati et al., 2015). Since preschool teachers are more exposed to developing children, they can detect children with ASD and identify which factors will affect their knowledge of it. This study was planned to evaluate the degree of awareness of preschool teachers regarding ASD from September 2023 to October 2023.

2. MATERIALS AND METHODS

A cross-sectional descriptive study was conducted among preschool teachers in the kindergartens in the Medina region to measure the awareness of autism among preschool teachers from September 2023 to October 2023.

Study population

The study's population was composed of kindergarten teachers in the Medina region.

Sample size

The size of the sample, comprising 288 teachers, was determined using the EPI-INFO.2 software, following the CDC guidelines for calculating sample sizes in descriptive studies.

Data source

The study's population was composed of kindergarten teachers in the Medina region who had been chosen randomly from public and private kindergartens. An official list of the public and private kindergartens was obtained from the Ministry of Education's governmental website. It was noticed that all sample participants were female because the role in the KSA is that only female teachers can work in kindergartens. There were, in total, 1147 teachers in the kindergartens, with about four teachers in every kindergarten.

Data Collection

Data was collected using a validated questionnaire (annexure) adopted from a previous study, and then we made some changes to match our objectives. The questionnaire was composed of two sections. The first section was related to the socio-demographic findings of the teachers, such as age, work position, living governorate, degree of education level, and experience teaching, and then a question related to any previous experience dealing with autistic children.

The other section was related to the Knowledge Questionnaire, which contains thirty-two items that aim to evaluate the degree of a teacher's knowledge of autism. The fifteenth Autism Knowledge Questionnaire (AKQ) was modified according to the study objectives. Two questions were added: The first one concerns the impact of smartphones, iPads, and TV on autism, and the second one concerns the effect of parents' work on autism. This section's questions were displayed as True/False.

Variables

The independent variables were age, work position, living governorate, degree of education, and experience teaching. Then, a question related to any previous experience dealing with autistic children was asked. The dependent variable is the AKQ.

Data Collection Procedure

At first, we contacted the kindergarten administrators and obtained permission to collect the data from female kindergarten teachers. Google forms and informed consent were distributed to kindergarten preschool teachers in the Medina region through different social media applications.

Statistical Analysis

The data was collected, reviewed, entered, and then analyzed using SPSS version 23.

3. RESULTS

The total number of participants in our search was 303 preschool teachers. As mentioned in Table 1, it was noticed that the age group 41 – 50 years old was the most prevalent age group with 127 participants (41.9%), while the age group more than 50 years old was the most minor age group sharing in our study by 29 participants (9.6%). Regarding the living place, most of our participants live in Medina, 245 participants (80.9%), as mentioned in (Table 2). Regarding the position of our participants, 220 participants (72.6%) worked as teachers, while 83 participants (27.4%) worked as administrators, as shown in (Table 3). Regarding the education level, bachelor's degrees had the most of our participants (81.1%), as shown in (Table 4).

Table 1 Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Age	<30 years	74	24.4	24.4	24.4
	>50 years	29	9.6	9.6	34.0
	30 – 40 years	73	24.1	24.1	58.1
	41 – 50 years	127	41.9	41.9	100.0
	Total	303	100.0	100.0	-

Table 2 Living place

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medina	245	80.9	80.9	80.9
	Outside Medina	58	19.1	19.1	100.0
	Total	303	100.0	100.0	-

Table 3 Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrator	83	27.4	27.4	27.4
	Teacher	220	72.6	72.6	100.0
	Total	303	100.0	100.0	-

Table 4 Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree	246	81.2	81.2	81.2
	Diploma	35	11.6	11.6	92.7
	Master's degree or higher	22	7.3	7.3	100.0
	Total	303	100.0	100.0	-

According to teaching experience, 54.5% of our participants had more than ten years of experience, as presented in (Table 5). The percentage of teachers contacting students with autism was 48.2 %, as shown in (Table 6). The assessment of AKQ is detailed in (Table 7). The answers of our participants were: The diagnosis of autism through behavioral observation (correct answer: 90.4%), the most beneficial treatment method of autism is behavioral intervention (correct answer: 80.5%), and autistic children show stereotypical behaviors like fluttering (correct answer: 82.5%). Children with autism do not engage in visual communication during conversations with others (correct answer: 71%), but they usually have unique abilities such as drawing and remembering facts and figures (correct answer: 88.4%). Most autistic children are female (correct answer: 12.9%).

Table 5 Teaching Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5 years	77	25.4	25.4	25.4
	>10 years	165	54.5	54.5	79.9
	5 - 10 years	61	20.1	20.1	100.0
	Total	303	100.0	100.0	-

Table 6 Contact with Students with Autism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	157	51.8	51.8	51.8
	Yes	146	48.2	48.2	100.0
	Total	303	100.0	100.0	-

Table 7 Level of Awareness

Statement	Correct answer
Autism disorder can be diagnosed by behavioral observation.	274 (90.4%)
Behavioral intervention is one of the most effective treatment approaches for autism.	244 (80.5%)
Autistic children have stereotypical behaviors such as fluttering	250 (82.5%)
Autistic children do not engage in any visual communication during conversations with others.	215 (71%)
Autistic children usually have special abilities such as drawing, facts, figures, and remembering.	268 (88.4%)
Most autistic children are female	39 (12.9%)
In many cases, the cause of autism disorder is unknown.	277 (91.4%)
If a specific treatment method achieved effective results with some autistic children, then it is necessarily effective with all autistic children.	77 (25.4%)

Autistic children have better behavior only in organized educational environments	233 (76.9%)
Autistic children favor routine activities.	206 (68%)
The diagnosis of children with autism usually occurs during the first three years of their age.	219 (72.3%)
Autistic children frequently repeat the words they hear.	236 (77.9%)
Vaccines can cause autism.	69 (31.7%)
Some autistic children have high or low sensitivity to visual, auditory, tactile, or olfactory stimuli.	256 (84.5)
Autistic children have similar behavioral patterns.	177 (58.4%)
Genetic factors play an essential role in causing autism disorder.	185 (61.1%)
Children must show social interaction and language communication impairment to be diagnosed with autism.	200 (66%)
Some autistic children show inconsistency in motor skills.	245 (80.9%)
Most autistic children have trouble with imaginary playing.	237 (78.2%)
We can diagnose autism disorder based on physical characteristics.	124 (40.9%)
Autism is a developmental disorder.	120 (39.6%)
Most autistic children do not speak.	165 (54.5%)
Poor parenting practices can lead to autism disorder.	194 (64%)
A child with autism looks like a deaf.	208 (68.6%)
Autism could be associated with Epilepsy	118 (38.9%)
Children with autism understand others' feelings and emotions.	170 (56.1%)
Medical methods diagnose autism disorder.	101 (33.3%)
Most autistic children have an intellectual disability.	151 (49.8%)
Autistic children tend to be auditory learners.	181 (59.7%)
Medication can alleviate the significant symptoms of autism disorder.	213 (70.3%)
With suitable intervention, most autistic children will eventually "outgrow" the disorder.	177 (58.4%)
The use of electronic devices, such as smartphones, iPads, and TVs, can lead to autism.	227 (74.9%)
Parents working a long time can cause autism.	163 (53.8%)

Most of the cases declare that autism disorder's cause is unknown (correct answer: 91.4%), and the effectiveness of one treatment among some autistic children necessitates its effects among all children as well (correct answer: 25.4%). Better behaviors among autistic children are only shared in structured learning environments (correct answer: 76.9%), autistic children have more preference towards routine activities (correct answer: 68%), autistic children are diagnosed during the first three years of age (correct answer: 72.3%), autistic children commonly repeat the discussion they hear (correct answer: 77.9%), the vaccine can cause autism (correct answer: 31.7%), and some autistic children have high or low sensitivity towards visual, auditory, tactile, or olfactory stimuli (correct answer: 84.5%).

The behavioral patterns observed in children with autism are alike (correct answer: 58.4%), genetic factors play an essential role as a cause of autism disorder (correct answer: 61.1%), children must exhibit impaired social interaction and language communication to be diagnosed with autism (correct answer: 66%), inconsistency in motor skills may be associated with autistic children (correct answer: 80.9%), and problems with imaginary playing are common among autistic children (correct answer: 78.2%). Physical features can aid in autism diagnosis (correct answer: 40.9%), autism is a developmental disorder (correct answer: 39.6%), children with autism do not talk (correct answer: 54.5%), autism disorder can be caused by poor parenting practices (correct answer: 64%). A child with autism appears to be deaf (correct answer: 68.6%), and autism could be associated with Epilepsy (correct answer: 38.9%).

Generally, children with autism understand the feelings and emotions of others (correct answer: 56.1%), autism disorder diagnoses by medical technique (correct answer: 33.3%), most children with autism have an intellectual disability (correct answer: 49.8%), and autistic children prefer auditory learning style (correct answer: 59.7%). Autism disorder symptoms can improve with medications (correct answer: 70.3%). With proper intervention, autistic children will eventually "outgrow" the disorder (correct answer: 58.4%), use of electronic devices, such as smartphones, iPads, and TV, can cause autism (correct answer: 74.9%), and parents working long times

can cause autism (correct answer: 53.8%). We used the Chi-square test, as shown in Table 8, to evaluate the relationship between the level of awareness and different socio-demographic characteristics among preschool teachers.

Table 8 Level of awareness concerning different factors

		Awareness level		p-value
		Good	Poor	
Age Group	<30 years	39 (52.7%)	35 (47.3%)	0.222
	>50 years	20 (69.0%)	9 (31.0%)	
	30 – 40 years	42 (57.5%)	31 (42.5%)	
	41 – 50 years	62 (48.8%)	65 (51.2%)	
Living place	Medina	131 (53.5%)	114 (46.5%)	0.815
	Outside Medina	32 (55.2%)	26 (44.8%)	
Position	Administrator	48 (57.8%)	35 (42.2%)	0.387
	Teacher	115 (52.3%)	105 (47.7%)	
Educational Level	Bachelor degree	127 (51.6%)	119 (48.4%)	0.170
	Diploma	24 (68.6%)	11 (31.4%)	
	Master's degree or higher	12 (54.5%)	10 (45.5%)	
Teaching Experience	<5 years	36 (46.8%)	41 (53.8%)	0.312
	>10 years	91 (55.2%)	74 (44.8%)	
	5 - 10 years	36 (59%)	25 (41%)	
Contact with autistic Students	NO	79 (50.3%)	78 (49.7%)	0.208
	YES	84 (57.5%)	62 (42.5%)	

The relation between level of awareness and age group P-value was 0.221757. The result is not significant at $p < 0.05$. The relation between the level of awareness and Living Place is the P-value of 0.814581. The result is not significant at $p < 0.05$. the relation between the level of awareness and Position P-Value is 0.386793. The result is insignificant at $p < 0.05$, the relation between awareness and Educational Level. The P-value is 0.169908. The result is not significant at $p < 0.05$. The relation between level of awareness and Teaching Experience The P-value is 0.312391. The result is not significant at $p < 0.05$. The relation between level of awareness and contact with autistic students. The P-value is 0.208042. The result is not significant at $p < 0.05$.

4. DISCUSSION

This study was planned to evaluate the level of awareness preschool teachers have about ASD. Preschool teachers' level of awareness regarding ASD was good. In our study, 53.79 % of our participants had good knowledge regarding autism. Another study reported that the same finding was planned to measure awareness (Ayub et al., 2017). Our study reported that primary school teachers had good knowledge about autism, demonstrating a good understanding that this disorder is related to mental and neurological manifestations in another study (Arif et al., 2013). He indicated that social media could affect primary school teachers' autism awareness.

In our study, the level of awareness of preschool teachers who had direct contact with autistic students was better but not significantly valued than that of those who had contact with students with autism. The same finding was observed in another study (Alharbi et al., 2019). He pointed out that the level of knowledge is better in teachers with a history of contact with students with autism. Our study reported a better understanding, but no significant relationship existed between knowledge level regarding age group, living place, position, educational level, and teaching experience. This indicates that all those factors cannot be considered important factors in measuring the awareness level regarding autism. The same finding was reported in another study in Pakistan. There was a good level of awareness concerning the attendance of the classes but no value regarding age, gender, or years of teaching experience.

In our study, 48.2 % of our participants had previous contact with autistic children, while 51.2% of our participants did not have contact with autistic students; this indicates that there is a need to give more importance to preschool teachers to train them regarding

the deal with the students with autism. In another study by Al-Sharbati et al., (2015), they indicated that only 11% of preschool teachers had a history of contact with autistic students. From those findings, we can say that our participants had good knowledge regarding autism. However, we need more training programs for teachers to increase their awareness regarding the diagnosis of autistic children and educate them about the best method of dealing with them. If they have a good understanding of this disorder, it will affect them positively regarding the management of students with autism.

5. CONCLUSION

Preschool teachers had good knowledge regarding detecting ASD. However, the level of awareness about class attendance remained the same. Still, there was no value regarding age, gender, years of teaching experience, and contact with autistic students. Therefore, further training is required for the teachers to improve their awareness regarding the diagnosis of children with autism and educate them about the best practices for dealing with students with autism.

Authors' Contributions

All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Khalid Mohammed Ghalilah: Conceptualization, Methodology, Writing- Reviewing and Editing, Project administration, and Supervision.

Shahad Mohammed Hassan Jorob: Conceptualization, Methodology, Writing- Reviewing and Editing, Validation, and Writing - Original Draft.

Dana Yousef Mansour Alahmadi, Leena Anas Ahmed Alkolaib: Conceptualization, Methodology, Writing- Reviewing and Editing, and Formal Analysis.

Umme Habiba Usman Ahmed Baqrain, Haneen Mohammed Saad Alharbi: Conceptualization, Methodology, Writing- Reviewing and Editing, Visualization, and Data Curation.

Joud Saleh Hamdan Alahmadi: Conceptualization, Methodology, Writing- Reviewing and Editing, and Investigation.

Ethical Considerations

Ethical considerations were carefully considered and incorporated throughout the study.

Informed Consent

Written and Oral informed consent was obtained from all participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Funding

This study has not received any external funding.

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

Questionnaire (Annexure)

Age Group	30> years 30– 40 years 41– 50 years >50 years
Living Location	Medina Outside Medina
Position	Teacher Administrator
Educational Level	Diploma Bachelor's degree Master's degree or higher
Teaching Experience	5>years 5 – 10 years >10 years
Behavioral observation can help diagnose autism disorder. Behavioral intervention is one of the most effective treatment approaches for autism. Children with autism show stereotypical behaviors such as fluttering. Autistic children do not communicate visually when conversing with other people. Autistic children usually have special abilities, such as drawing and remembering facts and figures. Most autistic children are female In many cases, autism disorder occurs due to unknown causes. If a specific treatment method achieved effective results with some autistic children, then it is necessarily effective with all autistic children Autistic children behave better only in organized educational environments. Autistic children favor routine activities. Usually, children are diagnosed with autism disorder during the first three years of their age. Autistic children frequently repeat the words they hear. Vaccines can be a causative agent to autism. Some autistic children have high or low sensitivity to visual, auditory, tactile, or olfactory stimuli. Behavioral patterns among autistic children are similar. Genetic factors play a vital role in causing autism disorder. Children must show social interaction and language communication impairment to be diagnosed with autism. Some autistic children have inconsistency in motor skills. Most autistic children have trouble with imaginary playing. Autism disorder could be diagnosed based on physical characteristics. Autism is a developmental disorder. Most autistic children do not speak. Poor parenting practices can lead to autism disorder. A child with autism looks like a deaf Autism could be associated with Epilepsy. Generally, autistic children understand others' feelings and emotions. Medical methods diagnose autism disorder.	Yes NO

Most autistic children have an intellectual disability.
 Autism children tend to be auditory learners.
 Medication can alleviate the significant symptoms of autism disorder†
 With suitable intervention, most autistic children will eventually "outgrow" the disorder
 Electronic devices such as (smartphones, iPads, TV) can cause autism.
 Parents working a long time can cause autism.

REFERENCES

- Alharbi KA, Alharbi AA, Al-Thunayyan FS, Alsuhaibani KA, Alsalameh NS, Alhomaidd MH, Albahouth IS, Hamid PF. School teacher's knowledge about autism in Al-Badaya city, Al-Qassim Region, Kingdom of Saudi Arabia. *Mater Sociomed* 2019; 31:4-9. doi: 10.5455/msm.2019.31.4-9
- Al-Sharbaty MM, Al-Farsi YM, Ouhtit A, Waly MI, Al-Shafae M, Al-Farsi O, Al-Khaduri M, Al-Said MF, Al-Adawi S. Awareness about autism among school teachers in Oman: a cross-sectional study. *Autism* 2015; 19(1):6-13. doi: 10.1177/1362361313508025
- Arif MM, Niazy A, Hassan B, Ahmed F. Awareness of autism in primary school teachers. *Autism Res Treat* 2013; 2013:961595. doi: 10.1155/2013/961595
- Ayub A, Naeem B, Ahmed WN, Srichand S, Aziz K, Abro B, Najam S, Murtaza D, Janjua AA, Ali S, Jehan I. Knowledge and perception regarding autism among primary school teachers: A Cross-sectional survey from Pakistan, South Asia. *Indian J Community Med* 2017; 42(3):177-179. doi: 10.4103/ijcm.IJCM_121_16
- Brugha TS, Spiers N, Bankart J, Cooper S-A, McManus S, Scott FJ, Tyrer F. Epidemiology of autism in adults across age groups and ability levels. *Br J Psychiatry* 2016; 209:498-503. doi: 10.1192/bjp.bp.115.174649
- Clinic C. What Are Early Signs of Autism Spectrum Disorder? *Cleveland Clin* 2024.
- Haimour AI, Obaidat YF. School teachers' knowledge about autism in Saudi Arabia. *World J Educ* 2013; 3(5):45-56. doi: 10.5430/wje.v3n5p45
- Imbriani G, Panico A, Grassi T, Idolo A, Serio F, Bagordo F, De-Filippis G, De-Giorgi D, Antonucci G, Piscitelli P, Colangelo M, Peccarisi L, Tumolo MR, De-Masi R, Miani A, De-Donno A. Early-Life Exposure to Environmental Air Pollution and Autism Spectrum Disorder: A Review of Available Evidence. *Int J Environ Res Public Health* 2021; 18(3):1204. doi: 10.3390/ijerph18031204
- Kanner L. Autistic disturbances of affective contact. *Nervous child: J Psychopathol, Psychother Men Hyg Guidance of the Child* 1943; 2:217-50.
- Lord C, Corsello C. Diagnostic instruments in autism spectrum disorders. *Handbook of autism and pervasive developmental disorders*, 2005; 730-771. doi: 10.1002/9780470939352.ch2
- Mohammed-Taresh S, Aniza-Ahmad N, Roslan S, Ma'rof AM, Mohammed-Zaid S. Mainstream Preschool Teachers' Skills at Identifying and Referring Children with Autism Spectrum Disorder (ASD). *Int J Environ Res Public Health* 2020; 17:4284. doi: 10.3390/ijerph17124284
- Qiu S, Lu Y, Li Y, Shi J, Cui H, Gu Y, Li Y, Zhong W, Zhu X, Liu Y, Cheng Y, Liu Y, Qiao Y. Prevalence of autism spectrum disorder in Asia: A systematic review and meta-analysis. *Psychiatry Res* 2020; 284:112679. doi: 10.1016/j.psychres.2019.112679
- Sabbagh HJ, Al-Jabri BA, Alsulami MA, Hashem LA, Aljubour AA, Alamoudi RA. Prevalence and characteristics of autistic children attending autism centers in 2 major cities in Saudi Arabia: A cross-sectional study. *Saudi Med J* 2021; 42(4):419-427. doi: 10.15537/smj.2021.42.4.20200630
- Salhia HO, Al-Nasser LA, Taher LS, Al-Khathaami AM, El-Metwally AA. Systemic review of the epidemiology of autism in Arab Gulf countries. *Neurosci (Riyadh)* 2014; 19:291-6.
- Simpson RL. Evidence-based practices and students with autism spectrum disorders. *Focus Autism Other Dev Disabl* 2005; 20(3):140-149. doi: 10.1177/1088357605020003020
- Taresh SM, Ahmad NA, Roslan S, Ma'rof AM. Preschool Teachers' Beliefs towards Children with Autism Spectrum Disorder (ASD) in Yemen. *Children (Basel)* 2020; 7(10):170. doi: 10.3390/children7100170